

Allied Paper Inc/Bryant Mill Pond

The Allied Paper Landfill is part of the Allied Paper/Portage Creek/Kalamazoo River Superfund site. The entire site is made up of five disposal areas, five paper mill properties, an 80-mile stretch of the Kalamazoo River from Morrow Dam to Lake Michigan and a three-mile stretch of Portage Creek.

Commented [GU1]: OU 1 is confusing and doesn't mean anything to the public so I removed it. My mistake on even putting it in.

Allied Paper Landfill occupies 89 acres including Portage Creek between Cork and Alcott streets in the city of Kalamazoo.

Site Contamination

A remedial investigation, a study of the nature and extent of contamination, was conducted by the Michigan Department of Environmental Quality and focused on polychlorinated biphenyls (PCBs).

Paper-making residuals were generated during the paper recycling process and PCBs were detected in the residuals. The residuals are mostly a mixture of clay and wood fiber and appear at the site as gray clay. As with most clay, the residuals have low permeability when compacted and are difficult to penetrate. Past excavation activities had been to remove all the gray clay residuals.

Site Update

September 2013

EPA has just released a document called a feasibility study (FS) that details different cleanup options for the landfill. The options include: consolidating waste and covering the landfill; digging up the contaminated soil and shipping it to a licensed landfill for disposal; and an encapsulation containment system. The study also details ground water control that could be added to the different options.

This web site has been created to share information and respond to your questions and concerns. Please link to bulleted topics for more information. If you have any questions you are welcome to contact either [Patricia Krause](#) or [Michael Berkoff](#) who are listed on the right side of the page.

- Ground Water
- Nature of Contamination
- Risks
- Capping Cleanup Option
- Removal and Disposal Cleanup Option
- Costs

- Paying for Cleanup

Ground Water

EPA has concluded that the ground water at Allied Landfill does not pose a risk outside of the waste. The City of Kalamazoo has raised concerns that contamination from the Allied Landfill could migrate to the City's well field and affect drinking water. In 2009, a study done by Millennium Holdings, then the owner and a responsible party for the cleanup of Allied Landfill, evaluated whether a pathway existed where the ground water would flow from the Allied Landfill to the City's Central Well Field. The study concluded that a ground water migration pathway from Allied Landfill to the City's Central Well Field is highly unlikely. EPA and MDEQ have determined that ground water at Allied Landfill flows towards Portage Creek and not towards the City of Kalamazoo's Central Well Field. Additionally, the low levels of contamination observed in the ground water within the landfill are not reaching Portage Creek, as evidenced by the ground water data.

Some of the specific findings of the study were that:

- Ground water is not flowing towards the City's Central Well Field.
- Shallow ground water flow is to the east and not northwest toward the City's Central Well Field. Shallow ground water from adjacent properties flows to the east and west onto Allied Landfill.
- Portage Creek is the point of discharge for shallow ground water from Allied Landfill further directing ground water away from the Central Well Field.
- All available data suggests that a flow path from Allied Landfill towards the city's Central Well Field is unlikely. The ground water in this area flows from a deeper aquifer to a shallow aquifer. Separating the aquifer is an impermeable rock layer, so the ground water in the deep aquifer never makes it to the shallow aquifer.
- Transport of PCBs in the ground water is limited. PCBs were detected in 3 of 56 monitoring well locations. The wells with detections were within or right next to the residuals.
- The land surface of Allied Landfill generally slopes toward Portage Creek which is why water from Allied Landfill discharges to Portage Creek.

Nature of Contamination at Allied Landfill

The nature of PCBs is that they are generally immobile, meaning that they don't move. PCBs are chemically and thermally stable so they will not change or decompose, have low solubility so they do not dissolve in water and will strongly adhere to solids. So in the case of Allied Landfill, PCBs adhere to the residuals due to their high organic content. Chemicals with low water solubility are more likely to be absorbed onto solids. PCBs readily absorb to organic material such as sediment and soil. PCBs at Allied Landfill do not readily migrate out of the paper

residuals. Currently the remaining potential sources of PCBs to Portage Creek from Allied Landfill are associated with erosion of contaminated soil and sediment.

Early investigative efforts focused on PCBs and recognized that addressing PCBs for cleanup would address other substances at the landfill. In addition to PCBs, inorganic materials, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were detected in soils, sediment and ground water.

Risks Posed by Allied Landfill

The risks posed by Allied Landfill to people's health through PCB exposure come from direct contact with contamination at Allied Landfill or consumption of PCB contaminated material at the Landfill. Allied Landfill poses a risk from direct contact with PCB contaminated materials to construction/utility workers and inhaling dust and emissions from PCB contaminated materials. There is a limited number of commercial/industrial and residential properties which contain contaminated paper residuals from the operations at Allied Paper Landfill. At these properties, there is also a risk of direct contact exposure. The PCB contamination at these properties is currently below clean soil or parking lots, which are barriers that prevent exposure. Consuming PCBs associated with Allied Landfill comes from local anglers eating fish which are contaminated with PCBs. The past Bryant Mill Pond cleanup action removed 150,000 cubic yards of waste from Portage Creek, next to Allied Landfill. PCB concentrations in fish have dropped since the removal action.

Cleanup Options

Capping

Capping involves placing a protective cover over contaminated material such as landfill waste or contaminated soil. Caps do not destroy or remove contaminants. Instead, they isolate the contaminants to keep them in place to prevent the spread of contamination from erosion. Caps also prevent people and wildlife from coming into direct contact with contaminants. Caps also help stop contamination from leaking into ground water by stopping rain and snow from seeping through the material and carrying contaminants to the ground water. Caps prevent wind from blowing contaminated material off site. The design of the cap for a site depends on several factors - the types and concentrations of contaminants, size of the site, amount of rainfall the area receives and future use of the property. Ground water monitoring wells placed around capped areas would be sampled to make sure contamination is contained.

Commented [JC2]: This seems to vary from the option in the FS – also sounds like preselection.

The National Contingency Plan, the federal government's plan for responding to hazardous substance releases and EPA guidance state that EPA expects to use engineered barriers like caps. Caps prevent exposure to wastes that are considered a "low-level threat," such as large volumes of waste that stays in place. Caps have been selected for use at many Superfund sites across the country. Capping with ground water monitoring is in place at King Highway (OU3), 12th Street

and the Willow Boulevard/A-Site (OU2) landfills, all in Michigan. These landfills have PCB contaminated residuals, and the remedies are operating successfully.

Excavation and Off-Site Disposal

The first step in total removal is to identify the exact limits of the contaminated areas at the site. To conduct the excavation, standard construction equipment like backhoes would be used. Equipment chosen is based on how large and deep the contaminated area is and whether access is limited because of the presence of buildings or other structures. Excavated soil would be transported off-site to a licensed landfill that can accept the waste. Excavation is complete when the remaining soil around the excavated area meets established cleanup levels. Clean soil from other locations may be needed to fill in the area as well. Any excavation would require extensive safety precautions, to prevent a release of contamination to Portage Creek or as dust emissions. Excavation around buildings is a bit more involved as precautions are needed so that foundations are not damaged.

Excavating contaminated soil may take several years and depends on several factors like how large and deep is the contaminated area and the available funding for the cleanup. Since EPA estimates that there is approximately 1.5 million cubic yards of contaminated material at Allied Landfill, total removal could take approximately 5 years with 100% funding of the cleanup. This activity requires local traffic safety precautions as well as causing community disruption. In that 5 year scenario, there would be an average of 40 truck trips per day, year-round.

Commented [JC3]: Was this calculation in the FS?? Or otherwise in the administrative record?

Commented [JC4]: Can you point me to guidance on this? thanks

Cost for Cleanup Options

The estimated cost for the consolidation, capping and monitoring option could cost around \$41 million. EPA estimated that the option for total removal of waste could cost \$189 million.

Paying for Cleanup

Allied Landfill's former owner, Millenium Holdings, established a \$50.5 million trust for cleanup of Allied Landfill as a part of a bankruptcy settlement in 2010. If funding is required beyond that trust account, a potential source may be from the EPA Superfund account for such projects. Nationwide funding for such projects has been significantly reduced over the last 5 years. The Allied Paper Landfill project would have to compete with other sites, nationally for funding from the EPA Superfund account.

What are PCBs? (place on right side or in separate box)

PCB s are a family of man-made chemicals that contain 209 individual compounds with different toxicity. PCBs were used widely as coolants and lubricants in transformers and other electrical

equipment. Manufacturing of PCBs stopped in 1977 because of evidence that PCBs accumulate in the environment and may cause a health hazard.

Technical Documents

www.epa.gov/region5/cleanup/kalproject

2009 Supplemental Ground Water Study which will also be available in the feasibility study

Sitewide Human Health Risk Assessment and Baseline Ecological Risk Assessment (link to pdf document)

Community Involvement Plan March 2008

www.epa.gov/region5/cleanup/kalproject/pdfs/kalproject_cip_200803.pdf

Fact Sheets

www.epa.gov/region5/cleanup/kalproject

Presentations

Kalamazoo Presentation on Allied Landfill (PDF) (21pp.2.6mb) January 9, 2013

www.eap.gov/region5/cleanup/kalproject-ppt2-20130109.pdf